

ELEMENT DESIGN FOR CREATIVE-IMAGINATION ENHANCEMENT MODEL FOR PRESCHOOL CHILDREN

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ABSTRACT

This study aims to identify elements for construction of creative-imagination enhancement model among preschool children and also priority of the elements based on views of experts. Three main elements were identified namely stimulate, sense and build. While in terms of element priority, the highest priority goes to stimulate, followed by sense and the third goes to build element. The study uses Fuzzy Delphi method based on consensus of the experts. Data from experts were obtained using questionnaire involving 12 experts. The experts consist of curriculum lecturers, early childhood education lecturers and preschool teachers. The results showed that all the three elements reached high percentage of consensus, which is over 90%. This shows that all the three elements have the required characteristics to develop the model design on creative-imagination enhancement among preschoolers.

KEYWORDS: Element Design, Creative-Imagination & Fuzzy Delphi Method

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INTRODUCTION

In a book entitled “That Used to Be Us”, written by Thomas Friedman and Michael Mandelbaum (2011) the authors have concluded on major economic challenges nowadays:

“Going forward, we convinced, the world increasingly will be divided between high imagination-enabling countries, which encourage and enable the imagination and extras of their people, and low imagination-enabling countries, which suppress or simply fail to develop their people’s creative capacities and abilities to spark new ideas, start up new industries and nurture their own “extra”. America has been the world’s leading high imagination-enabling country and now it needs to become a hyper-high-imagination-enabling society. That is the only way we can hope to have companies that are increasingly productive and many workers with jobs that pay decent salaries.”

(Thomas Friedman, 2011)

According to Wagner (2008) in his book entitled ‘The Global Achievement Gap’, he outlined seven new skills to be mastered by students nowadays in matters relating to careers, lifelong learning and citizenship that is growing known as Seven Survival skills, and included curiosity and imagination as one of the skills. Robinson (2009) stated that in discussing creativity construction of a person, one of the elements that should not be ignored is the power of imagination. The author presented imagination as a basic characteristic in human wisdom. He proposed that every achievement and excellence achieved by human is imbued with imagination. Human

imagination moves people from cave to town, turns carcass into food and brings superstition to science. The relationship between imagination and reality is very unique and complicated to understand. Imagination also leads us to think of something that exists not only in present or in the past but also something that men never experience before or to something that never existed. Nevertheless, imagination according to the author is something that we tend to overlook and ignore in life. We do not see imagination as something that can be sharpened, fostered, nurtured and developed. In fact there are some who view that imagination only exists within selected individuals only.

In the context of Malaysia as a country that is emerging and wishes to become a developed nation by 2020, there is an urgent need for people who are creative and innovative. Economic development as a result of changes in government policy that concerned more on industrial sector, information technology and science has changed and will continue to change the level and pattern of our society as a whole. Therefore, there is a strong need to produce creative individuals to meet the needs of the country in this increasingly challenging world thus demanding greater efforts to foster and enhance creativity among students.

Problem Statement

In Malaysia, the importance of creativity in early childhood education is clearly written in the discourse of Preschool Education Curriculum. Among the six components contained in the preschool curriculum are the creativity and aesthetics components focusing on developing creativity and expression through Curriculum Standard National Preschool implemented in 2011, explains that there are six pillars of learning that shares the same focus in primary schooleducationnamely: Communication; Spirituality, Attitudes and Values; Humanities; Science and Technology; Physical Growth and Aesthetics Development and Personal Skills. Standard Domain Creativity (SDC) is one of the domains contained in the curriculum that consists of two components, namely, fostering creative thinking and creative attitudes and personalities (Ministry of Education, 2009). Each child is considered as having the potential for creativity naturally. However, nurturance, guidance, and appropriate environmental stimulus is necessary to producecreative and innovative individual (Ministry of Education, 2009). It is intended to provide opportunities and space for children to be creative and innovative in order to nurture them as individuals with the following characteristics: Asking question and finding answers, making connections and looking for relation, anticipating what will happen, speculating about the possibilities, exploring ideas, actions and results.

Po Bronson and Ashley Merryman in Newsweek (2010), in an article entitled 'The Creativity Crisis' discussed the issue of creativity construction among children since 1990 based on previous studies. The study found that the level of creativity of children in the US is declining. Among the causes observed are due to lengthy use of time spentby children in watching television and playing video games rather than engaging in creative activities. In fact,the authors claimed that weak creativity building skill among childrenin schools is also one of the causes. Typically, teachers who teach preschoolers were described as individuals who are able to increase creativity level of the children however it was found thata large number ofpreschool teachers are incapable to nurture the values of individuality, creativity, imagination and aesthetic appreciation (Wong and Lau, 2001). (Fortson & Reiff, 1995) often pointed out that comprehensive development of children through their development of creativity and aesthetics need to be raised in the teaching and learning processes in preschool education. Therefore, it is clear that in order to produce an innovative society that can survive in a challenging environment and thus can lead to prosperity of a society and country, all these effort must be shouldered with prudence, proper and systematic manner. This is because, producing innovative individuals requires creative beings from each

individual and to form creative individuals, there must be an ability to imagine.

Purpose of Study

This study aims to identify the elements and their position in the design of creative-imagination enhancement model among preschool children. For the purpose of this study, there are two research questions that need to be answered:

- What are the elements involved in the design of creative imagination enhancement model among preschool children based on the expert opinions?
- What is the position for selected elements in terms of their priority based on views of the experts?

METHODOLOGY

Delphi method is a method to determine results that involves several rounds of questionnaire to explore opinions and views of the experts on issue under review (Linstone& Turoff, 2002). This method also known as internal agreement or consensus opinion (thinking, intuition and feeling) by a group of selected or voted experts. Adler and Ziglio (1996) stated that the Delphi method is a structured process for collecting and distilling knowledge from a group of experts through a series of questionnaires for controlled feedback. This opinion is in line with Delbecq et al. (1975) who defined the Delphi technique as a method of feedback collection taken from systematic consideration and evaluation by group of experts on certain issues using sequential order questionnaire by taking into account views and opinions obtained from previous questionnaires. Delphi method is also known as method of making assumptions through assessment of experts. Thus, Hill and Fowles (1975) have illustrated the Delphi technique as a reaction to the voting procedures or opinion that is possible and probable to the future. Fuzzy-Delphi method consists of six steps to be observed in order to obtain the necessary data which are as follows:

- **Step 1:** Experts are invited to determine the importance of evaluation criteria of the variables to be measured with the use of linguistic variables (Table 1).

Table 1: 7 Point Scale Linguistic Variable

SCALE LINGUISTIC VARIABLE	FUZZY SCALE
Absolutely Disagree	(0.0, 0.0, 0.1)
Strongly Disagree	(0.0, 0.1, 0.3)
Disagree	(0.1, 0.3, 0.5)
Somewhat Agree	(0.3, 0.5, 0.7)
Agree	(0.5, 0.7, 0.9)
Strongly Agree	(0.7, 0.9, 1.0)
Absolutely Agree	(0.9, 1.0, 1.0)

- **Step 2:** Transfer all linguistic variables into triangular Fuzzy number as proposed in the above table. Suppose the numbers are fuzzy variables per criteria for the experts:

$$i = 1, \dots, m,$$

$$j = 1, \dots, n,$$

$$k = 1, \dots, k \text{ dan}$$

$$rij = \frac{1}{K} [\pm r_1 i j r_2 i j \pm r i j]$$

- **Step 3:** For each expert, use the vertex method to calculate the distance between i (Chen, 2000). Distance of two fuzzy numbers $m = (m_1, m_2, m_3)$ dan $n = (n_1, n_2, n_3)$ is calculated using the formula:

$$d(\tilde{m}\tilde{n}) = \sqrt{\frac{1}{3}[(m_1 - n_1)^2 + (m_2 - n_2)^2 + (m_3 - n_3)^2]}$$

- **Step 4:** According to Cheng and Lin (2002), if the received d value is ($d < 0.2$), expert consensus has been reached. Among $m \times n$ experts, if the percentage reached a consensus group for more than 75% (Chu & Hwang, 2008; Murry & Hammons, 1995) proceed to step 5. Otherwise, a second round of Fuzzy Delphi Method (FDM) need to be repeated.

- **Step 5:** Aggregate the Fuzzy assessment with:

$$\tilde{A} = \begin{bmatrix} \tilde{A}_1 \\ \tilde{A}_2 \\ \vdots \\ \tilde{A}_m \end{bmatrix}$$

$$i = 1, \dots, m$$

- **Step 6:** For each alternative option, Fuzzy evaluation $A_i = A_i = (a_1, a_2, a_3)$ in defuzzication with formula:

$$ai = \frac{1}{4}(a_1 + 2a_2 + a_3)$$

Alternative sequence for ranking can be determined according to the ai value.

FDM ANALYSIS REPORT

FDM analysis report looks at how far the experts have agreed to assess the constructed model. Based on the 7 scale linguistic range, the threshold value d is calculated to assess consensus among experts. The d value that exceeds 0.2 will be put in bold to show that the views of individuals for an item contradicts with consensus of the expert group (Cheng & Lin, 2002). According to Chu & Hwang (2008) and Murry & Hammons (1995), the criteria used to evaluate the group consensus is based on terms that it should be more than 75%. If the percentage of consensus is lower than 75%, then the assessment should be repeated until it reaches the proper value.

Once the acquired threshold of d value reaches more than 75%, the process for completing the Fuzzy Delphi method passed through defuzzified value calculation (figure 1).



Figure 1: Range of Expert Consensus

Defuzzification value calculation is used to identify the agreed items in the Creative-Imagination model assessment. The defuzzification value range accepted as a consensus among experts is between 33.6 to 46.8 (Muhammad Ridhuan Tony Lim, 2014 Nurulrabihah, 2014). Defuzzification value of 24 is the minimum value for experts consensus for all of the items, while 46.8 is the maximum value for expert consensus. Figure 1 shows the breakdown of range based on expert consensus.

Study Sample

According to Adler and Ziglio (1996), the appropriate number of experts in the Delphi method is between 10 to 15 people, while Jones and Twiss (1978) suggested 10 to 50 experts. This study involved 12 experts consisting of three experts in curriculum, 3 specialists in early childhood education and 6 expert teachers in early childhood education. All of them have more than 10 years experience in their respective fields.

Research Instrument

A Likert 7-point-scale questionnaire was used in the study. The questionnaire consists of two parts, namely demography and list of elements. All of the items are designed to answer research questions of this study.

Study Analysis

Table 2 below shows the percentage of expert consensus on the seven elements that are given priority and ranking position for each element. According to the table below, there are three elements that are found reaching the expert consensus since the percentage for expert consensus is above 75%. These elements are stimulate (90%), sense (85%) and build (88%). The result shows that only three of these elements are suitable to be involved in the development of creative-imagination model for preschoolers to answer the first research question. Next to answer the second research question, defuzzified value was obtained for priority ranking of the three elements under study. According to the table below, the ranking position of elements are as follows; stimulate (44.0), sense (42.2) and build (40.5).

Table 2: Percentage Value and Defuzzification Score Value

Element	Percentage (%)	Defuzzification
Curious	65.0	22.3
Stimulate	90.0	44.0
Explore	70.0	21.3
Sense	85.0	42.2
Build	72.0	40.5
Play	68.0	20.6
Produce	88.0	22.0

DISCUSSION AND CONCLUSION

The findings above clearly show that in order to design a model associated with enhancement of creative-imagination among preschoolers, there are three elements that need to be given serious attention, namely stimulate, sense and build. All the three elements must also be sorted according to their priority as a guide for later construction of the model. According to Susan in her study (2010), creativity is closely related with personality, expression, imagination and belonging. Thus, the three elements selected by the experts are consistent with findings made by Susan (2010) earlier. Next, according to Vygotsky, there are some elements that connect imagination and creativity, namely: own experience, experience, stories by other people and self-experience, emotions, and also creation of fantasy and reality. Thus, the identification of the three elements agreed by the experts would at least serve as a guide to assist in the model design and creative-imagination in a more systematic manner since imagination and creativity should be built and nurtured due to the fact that both have already existed within each individual.

The study also showed that in terms of main stage in creative-imagination enhancement among preschoolers, stimulus found to be the key element followed by sense and build. The finding clearly shows that an effective teacher must be able to provide learning experience that could stimulate mind and psyche of children. Every children must also be given the opportunity to experience through the use of their senses more effectively in order for their imagination to be clearer, more guided and directed. This will eventually lead to creative formation of thought and individual personality through the teacher's capacity to translate the students' creative thinking from their particular works that can be evaluated and measured as creative.

The three elements agreed by the experts should always be noted and emphasized accordingly. The emphasis is not by simply stating that the three elements are important, but it should be realized in the development of teaching and learning materials for preschool children. Therefore, teachers must be given systematic training and guidance in order to establish a clear understanding on the importance of imagination in creativity among school children.

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